



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

AUG 07 1991

*Carrier*

MEMORANDUM

Subject: Review of Draft Remedial Investigation and Baseline Risk Assessment for the Carrier Air Conditioning Site Collierville, Tennessee

From: Glenn Adams, Toxicologist  
Ground-Water Technology Unit

*Glenn Adams*

To: Beth Brown, Remedial Project Manager  
North Superfund Remedial Branch

Thru: Jon Isbell, Acting Chief  
Ground-Water Technology Unit

*Jon Isbell*

I have reviewed the Remedial Investigation (RI) which contains the Baseline Risk Assessment (BRA) for the Carrier Air Conditioning site as per your request. My review was mainly centered on the BRA. My specific comments are as follows:

✓ Section 1.2 (page 13)

It is reported that there was a 500 gallon release of trichloroethylene (TCE) in 1985 and 542 gallons of the TCE released was recovered. It should be explained how more TCE could be recovered than was released.

X Section 4.5 (page 94)

It is suggested that the well construction material (i.e., galvanized casing) may be contributing to the lead levels in the ground-water samples. It should be mentioned that these monitoring wells are not being purged and the reasons for this.

✓ Section 8.2 (pages 193-196)

The discussion of the selection of the contaminants of concern (COC) should be more detailed. The reasons for omitting contaminants listed in Tables 8-1 thru 8-6 should be provided in the text.

Also, the chemicals tetrachloroethylene (PCE) and 1,2-dichloroethane (1,2-DCA) should be added as chemicals of concern. These two volatile organic chemicals (VOCs) were detected only 1 out of 23 times, but both detections came in the latest sampling event and both detected concentrations exceed their respective maximum contaminant levels (MCLs).



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Section 8.3 (page 198)

In this section, it is discussed that passive volatilization of contaminants from the site would not be of significant risk. The reason suggested for this insignificance is that the company has an air permit allowing approximately 200 tons of total VOCs per year to be emitted. This discussion should also contain information about the amounts of the contaminated areas which are covered with pavement, buildings, or grass. It also should mention that the major contaminated soils are below the surface soils.

It may seem that the air pathway does not need to be addressed because of the facts stated in the BRA and above, but the soil gas vapor extraction system does have VOC emissions which could be a potential health concern to the workers and nearby residents. The RI does not seem to provide adequate data to evaluate this pathway. Lee Page of Region IV's Air Program has provided you with comments on a monitoring system which can be used to evaluate this pathway. Until data is provided which shows that the air pathway is not of concern, this pathway should not be ruled out. Also, the demography for the area surrounding the site needs to be discussed for this pathway.

✓ Table 8-8 (page 200)

This table discusses the potential and current pathways of exposure concerning the ground water. The data used in calculating the risk from the ground-water pathway should use the concentrations before air-stripping, not after. The concentrations before the air-stripping are representative of the true risks from the contaminated ground water. It should be mentioned that the ground water entering the public water supply (PWS) is going through an air-stripper before entering the PWS distribution system.

The last pathway in this table should be inhalation of chemical vapors, not ingestion of chemical vapors.

✓ Section 8.4 (pages 201-203)

This section needs to include more specific information on the contaminants of concern. For example, specific information about each chemical's cancer classification and the reference dose and/or cancer slope factor. Chapter 7 of EPA's Risk Assessment Guidance for Superfund should be consulted for more specific guidance in writing this section.

Table 8-9 (page 202)

The cancer weight of evidence for 1,2-DCA should be "D" and the MCL should be 0.07 mg/l, not 0.7.

On June 7, 1991, EPA finalized the MCL for lead as a treatment technique with an action level for lead in drinking water of 15 ug/l. This action level should be the cleanup level for lead in ground water.

The cleanup goal (5 mg/l) for zinc in ground water is a secondary MCL, not a primary MCL, and should be referenced as such.

The references for the list of ARARs should be more specific. I am attaching a copy of an MCL, MCLG, and SMCL chart to this memo which can be used for better references.

Section 8.5.1 (pages 203-204)

The risks associated with the ground-water pathway should be quantified as per Chapter 6 of RAGS. It is not EPA's policy to simply compare the detected concentrations to the respective MCL or health-based goal. The calculated risks need to be contained in the BRA.

On page 204, it is stated that the inhalation pathway from exposure to ground water (i.e., inhalation of VOCs while showering) is not significant. This is not a true statement. At the present time, EPA has not developed good guidance on calculating the risks associated with this pathway, but this does not indicate that the risks associated with this pathway are insignificant.

Figure 8-2 (page 206)

The footnote states that the oral and dermal doses are additive. This is true when the dermal dose has been adjusted to an intake dose, but intake doses are not additive with absorbed doses. Appendix A of RAGS should be consulted for guidance in these adjustments.

Section 8.5.2 (pages 204-209)

It is not clear from the information provided in this RI if there were any surface soil samples taken. The concentrations used in the BRA came from the upper 5-feet as stated on page 207, but it is not stated whether this was 1-foot composite samples or samples from a depth of 5-feet. There should be some type of data showing that the surface soil is not more contaminated than the 5-foot depth.

✓ Page 207 also states that the concentrations used in the BRA were calculated according to RAGS. Page 6-19 of RAGS states that the 95% UCL (upper confidence limit) should be calculated from the arithmetic average. It also states that if the UCL concentration exceeds the maximum detected concentration then the maximum detected concentration should be used as the reasonable maximum exposure (RME) concentration.

Another way to look at a site is to consider "hot spots" instead of looking at contamination over the complete site. This method may be the best way to evaluate the risk associated with contamination at the Carrier site, since the sampling seems to be biased toward known "hot spot" areas. If we are sure that all of the "hot spots" have been addressed then this method may be more indicative of the risks present at the site.

✓ Figure 8-3 (page 209)

The exposure assumptions provided in this table should be referenced. Also, the days of exposure for future residents should be 250 days as provided in EPA's supplemental guidance to RAGS (Standard Default Exposure Factors, March 25, 1991).

If you have any questions, please call me at x3866.

Attachment